UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/783,720 | 02/19/2004 | Jack T. Oldham | 1684-6036US<br>(484-28684-US | 7639 |

24247 7590 06/19/2007

TRASK BRITT
P.O. BOX 2550
SALT LAKE CITY, UT 84110

| EXAMINER | |
|---|---|
| BOMAR, THOMAS S | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3672 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 06/19/2007 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/783,720 | OLDHAM ET AL. | |
| | Examiner | Art Unit | |
| | Shane Bomar | 3672 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *31 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-9,11-74,179-186 and 189-193* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-9,11-74,190 and 192* is/are allowed.

6)☒ Claim(s) *179-186,189,191 and 193* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/31/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 31, 2007 has been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### *Claim Rejections - 35 USC § 102*

3. Claim 189 is rejected under 35 U.S.C. 102(b) as being anticipated by US 6,062,326 to Strong et al.

Strong et al disclose a casing bit comprising: an inner profile; an outer profile; a nose portion with an aperture therein; a gage section 46 extending longitudinally from adjacent the nose portion; a first plurality of cutting elements 44 are configured to initially engage and drill through a first region and to substantially wear away while drilling through the first region; and a second plurality of cutting elements 48 configured to engage and drill through a second region to be subsequently encountered by the casing bit, at least one cutting element of the second plurality of cutting elements comprising a polycrystalline diamond cutting element and positioned in rotational alignment (since they are on the same blade together) with at least one

cutting element of the first plurality of cutting elements comprising a tungsten carbide cutting element (see Fig. 3 and col. 4, lines 1-15). Since cutting elements 44 are made of the same material (tungsten carbide) as the Applicant's first cutting elements they must inherently wear away in the same fashion as that currently being claimed. Furthermore, the cutting element 48 of the second plurality will rotationally follow the cutting element 44 of the first plurality because, as the bit rotates, the cutting element 44 will cut through the formation followed by the cutting element 48, while maintaining the same alignment relative to one another.

4. Claim 191 is rejected under 35 U.S.C. 102(a) as being anticipated by paper # WOCD-0306-05 to McKay et al (paper #1).

Paper #1 discloses three types of casing bits, the DS 1, DS 2, and DS 3, wherein each bit has an inner profile, an outer profile, and a nose portion; at least one aperture formed in the nose portion of the casing bit and configured for delivering drilling fluid from an interior of the casing bit to an exterior thereof; a plurality of generally radially extending blades, or discrete cutting element retention structures, disposed on the nose portion, wherein at least one of the plurality of blades carries one or more cutting elements affixed thereto; and at least one gage section, the at least one gage section extending longitudinally from adjacent the nose portion of the casing bit (see Figs. 1-3, the Introduction, and the Background).

Regarding claim 191, Figures 1 and 2 of paper #1, show grooves behind and between the cutting elements on the blades. These grooves would inherently cause the bit face to break into two or more smaller sections when the next drill bit drills through the first bit.

***Claim Rejections - 35 USC § 103***

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claim 179 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,351,401 to Fielder in view of US 6,817,633 to Brill et al.

Fielder teaches a drill bit for drilling a subterranean formation comprising: an inner profile, an outer profile, and a nose portion (Fig. 1); at least one aperture 34 formed in the nose portion of the bit and configured for delivering drilling fluid from an interior of the bit to an exterior thereof; a plurality of discrete cutting element retention structures 14 extending from the nose portion, wherein each discrete cutting element retention structure is configured to carry a sole cutting element 8; and at least one gage section 6, the at least one gage section extending longitudinally from adjacent the nose portion (see Figs. 1 and 3). However, it is not explicitly taught that the section of drill pipe 2 is a section of casing.

Brill et al teach that drill pipe, such as the pipe taught by Fielder, can advantageously be replaced by casing (col. 2, lines 9-32). It would have been obvious to one of ordinary skill in the art, having the teachings of Fielder and Brill et al before him at the time the invention was made, to replace the drill pipe taught by Fielder to include the casing of Brill et al, in order to obtain the

ability to reduce the number of times pipe must be removed and inserted in the wellbore, as taught by Brill et al. One would have been motivated to make such a combination because the use of casing in place of drill pipe will reduce drilling and completion costs, as also taught by Brill et al.

7. Claims 180-186 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strong et al in view of US 6,702,045 to Elsby.

Regarding claims 180-184, Strong et al teach a casing bit comprising an inner profile, an outer profile, and a nose portion, with the additional limitation that the gage section 46 is configured to extend longitudinally adjacent a portion of casing section 32 when the bit 44 is secured to the casing section (see Fig. 3 and 4). Furthermore, the casing bit inherently comprises at least one thread for securing the bit to a separate casing section of a casing string through a connection to the stabilizer when said stabilizer has its own threaded box and pin (i.e., the bit could only be attached to the threaded box or pin with its own complementary threads; see col. 4, lines 54-59). However, in this configuration, the gage section will not extend longitudinally adjacent a portion of the separate casing section when the separate section is secured to the bit.

Elsby teaches in Figures 1 and 2 a bit with a nose portion, an aperture 46 in the nose portion, cutting elements on the nose portion, and a gage section 41 similar to that of Strong et al. It is further taught that the gage section 41 extends to, and abuts, a gage section 24 that extends longitudinally adjacent a separate portion 13 of the string (Fig. 1). It would have been obvious to one of ordinary skill in the art, having the teachings of Strong et al and Elsby before him at the time the invention was made, to modify the separate section of casing that the stabilizer is attached (as shown in col. 4, lines 54-59) taught by Strong et al to include the gage

section 24 of Elsby, in order to obtain additional conduits 30 between the separate section and the gage section (Fig. 1 of Elsby). One would have been motivated to make such a combination because the additional conduits will direct flushing fluids, such as air, directly to the cutting face rather than at the angles the prior art could only achieve without the passages (col. 1, line 65 through col. 2, line 10).

Regarding claims 185 and 186, as is notoriously known in the art, the inserts in the casing bit will act as percussive bits with any up and down motion experienced by the casing, which could happen if the bit were to encounter material that makes it bounce, or if the string experienced a sticking situation and had to be slid up and down within the hole.

8. Claim 193 is rejected under 35 U.S.C. 103(a) as being unpatentable over McKay et al or Strong et al in view of US 2,215,913 to Brown.

Both McKay et al and Strong et al teach a drillable casing bit with at least one aperture, at least one gage section, and a plurality of radially extending blades, as seen in the rejections above. However, it is not specifically taught that at least one of an incendiary agent, an explosive agent, and a reactive chemical renders the bit more drillable.

Brown teaches drillable casing installed in a borehole similar to that of either McKay et al or Strong et al. It is further taught that the drillable casing is rendered more drillable by explosives and/or chemicals (see page 2, col. 1, lines 42-44). It would have been obvious to one of ordinary skill in the art, having the teachings of McKay et al or Strong et al and Brown before him at the time the invention was made, to modify the drillable casing bit taught by McKay et al or Strong et al to include the explosive agent and/or chemical agent of Brown. One would have been motivated to make such a combination since the references address the narrow problem of

making portions of downhole casing drillable by a subsequent drilling operation; therefore, a person seeking to solve that exact problem would consult the references and apply their teachings together.

### *Allowable Subject Matter*

9. Claims 1-9, 11-74, 190, and 192 are allowed.

### *Response to Arguments*

10. Applicant's arguments with respect to claim 179-186 have been considered but are moot in view of the new ground(s) of rejection.

11. Applicant's arguments filed May 31, 2007 have been fully considered but they are not persuasive.

a. With respect to claim 189, the applicant argues that the cutting elements 48 of Strong et al are not in rotational alignment with the cutting elements 44 because one would not "rotationally follow" the other. However, when the bit rotates, one will have to follow one another since they are attached to the same structure and do not move relative to one another, therefore 48 will follow 44 when the bit rotates and they maintain there relative alignments to one another during rotation. It appears that the Applicant is referring to Fig. 10B of the current specification, wherein the second plurality of cutting elements follow along in substantially the same groove as made by the preceding cutting element, although the claim, as currently worded, does not necessarily convey this limitation.

b. With respect to claim 191, the Applicant argues that the grooves pointed out by the Examiner will not allow the blade to separate into two or more smaller sections because Figures 9 and 12 of Paper #1 show that the blades remain fully intact. While this may be true for the DS3 embodiment where the blades are pushed apart, the DS1 and DS2 embodiment relied upon by the Examiner are configured to be actually drilled out, therefore, when the subsequent drill bit reaches the point of the groove that separates one cutting element from another, the tops of the two cutting elements will separate from the bit.

c. With respect to claim 193, the Applicant argues that the combination of Paper #1 or Strong et al with Brown will not render the bit more drillable because the explosives or chemicals will only act to remove a portion of the sidewall of the casing section. However, the casing section is a part of the casing bit and the explosives, for example, will break up any portions of the bit in proximity to the blast, and this breaking-up of portions will inherently make them more drillable when an underreaming operation, for example, is conducted after the explosion has taken place (page 2, lines 36-52 of Brown).

***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane Bomar whose telephone number is 571-272-7026. The examiner can normally be reached on Monday - Thursday from 6:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on 571-272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/*Shane Bomar*/
Patent Examiner
Art Unit 3672

June 11, 2007